

Total Robotic Pancreaticoduodenectomy

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Context The “da Vinci” surgical system reintroduces much of the operative dexterity lost during laparoscopic operations and offers the unique opportunity to verify if pancreaticoduodenectomy (PD) can be safely performed through a minimally invasive approach. **Objective** We report our technique for total robotic PD employed in 39 consecutive patients. This experience was earned at a high-volume center of pancreatic surgery, having extensive experience in advanced laparoscopy and robotic surgery. **Methods** Our technique for total robotic PD is unique in several respects: pure laparoscopy is not used at any stage; only the right colonic flexure is mobilized; a total of five ports are used; the camera port is placed along the right pararectal line to allow optimal view of the uncinate process (UP); the third robotic arm is placed on the patient’s left side and it is used to “hang” the duodenum during dissection of the UP; the gallbladder is used to retract the liver; the first jejunal loop is fully mobilized but it is not sectioned until the specimen is ready for removal, to facilitate jejunal rotation behind the mesenteric vessels. **Results** No PD was converted

to open surgery or laparoscopy, despite 3 patients required segmental resection of the mesenteric vein and reconstruction by a jump graft. Mean operative time was 597 minutes (range: 420-960 minutes). Thirty-day operative mortality was nil. No pseudoaneurysm of the gastroduodenal artery was noted. Only 4 patients developed grade B pancreatic fistulas and none grade C fistulas. Mean hospital-stay was 23 days (range: 10-86 days). Malignant tumors were diagnosed in 51% of the patients. Overall, the mean number of lymph nodes retrieved was 32 (range 15-76). None of the margins was positive. **Conclusions** In selected patients total robotic PD is feasible. As compared to hybrid techniques, coupling laparoscopic dissection with robotic reconstruction, a total robotic procedure spares unnecessary dissections and allows optimal control of large peripancreatic vessels permitting segmental vein resection and tailored reconstruction. Technology refinements and improvement of surgical technique could make robotic PD an appealing alternative to open PD in selected patients.